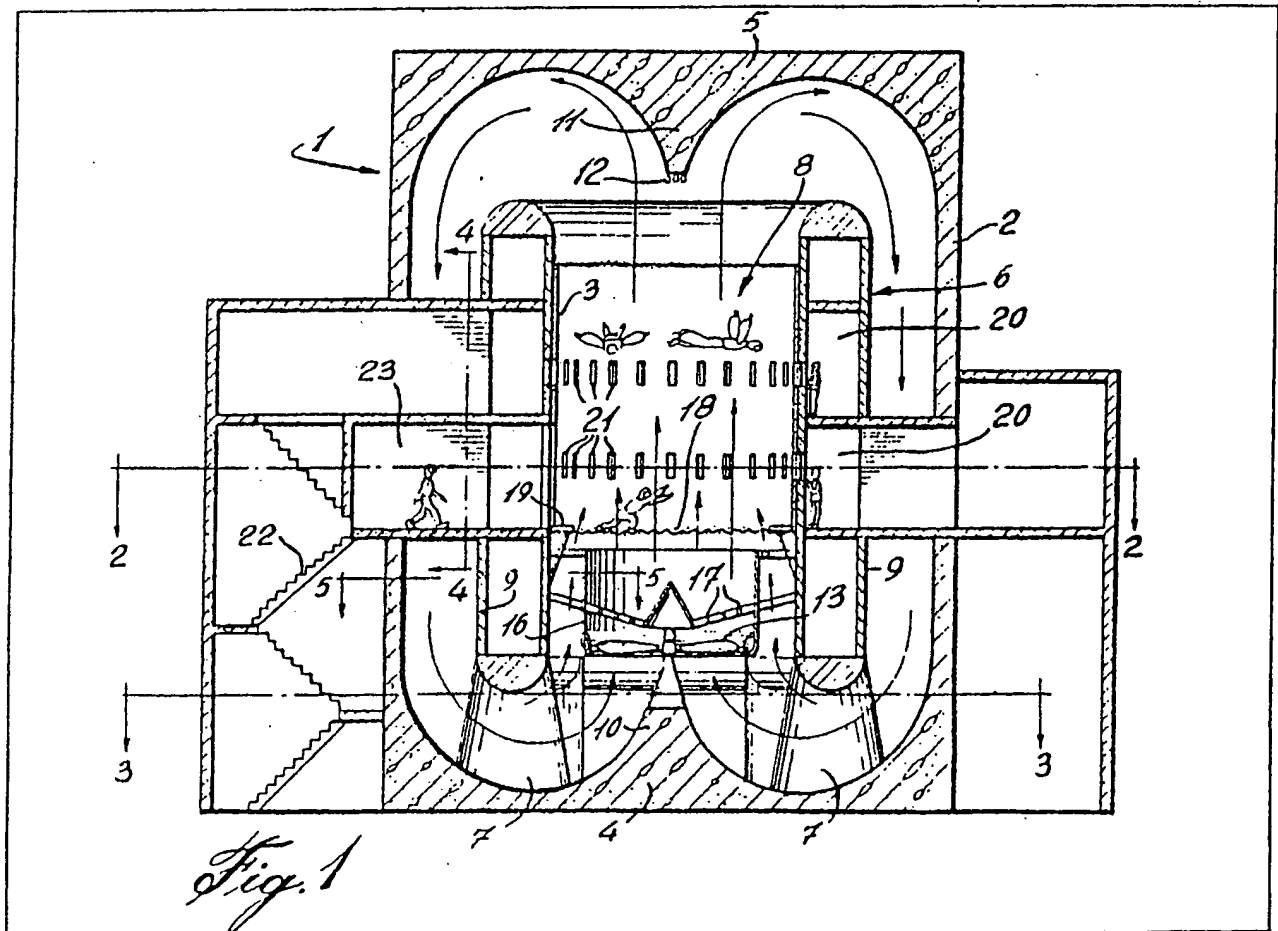


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 (71) Applicants  
 Societe de Constructions Vogel-Chartran Inc., Montreal, Canada.  
 (72) Inventors  
 Jean St-Germain  
 (74) Agents  
 S. Jones-Robinson, The Laurels, 320, London Road, Charlton Kings, Cheltenham, Gloucestershire, GL52 6YJ.

(54) Levitationarium for air floatation of humans

(57) An installation in the form of a building (1) has a room or chamber (8) in which an upward air flow is produced to levitate human beings and is constructed so as to be simple, safe and economical to operate, by comprising a shrouded air impeller (13) which produces an induced suction flow in an annular air passage around it, under the action of the direct flow produced by the impeller inside the shroud (16); by having a toroidal air passage which provides closed circuit streamline air flow serially through it and the levitation chamber (8); and by including a toroidal core portion (6) which is interposed between chamber and the air passage and which provides a spectator gallery (20) and access to the chamber. A grating (18) provides a take-off and landing base and has a peripheral walkway (19) on which people can stand clear of the upward air flow.



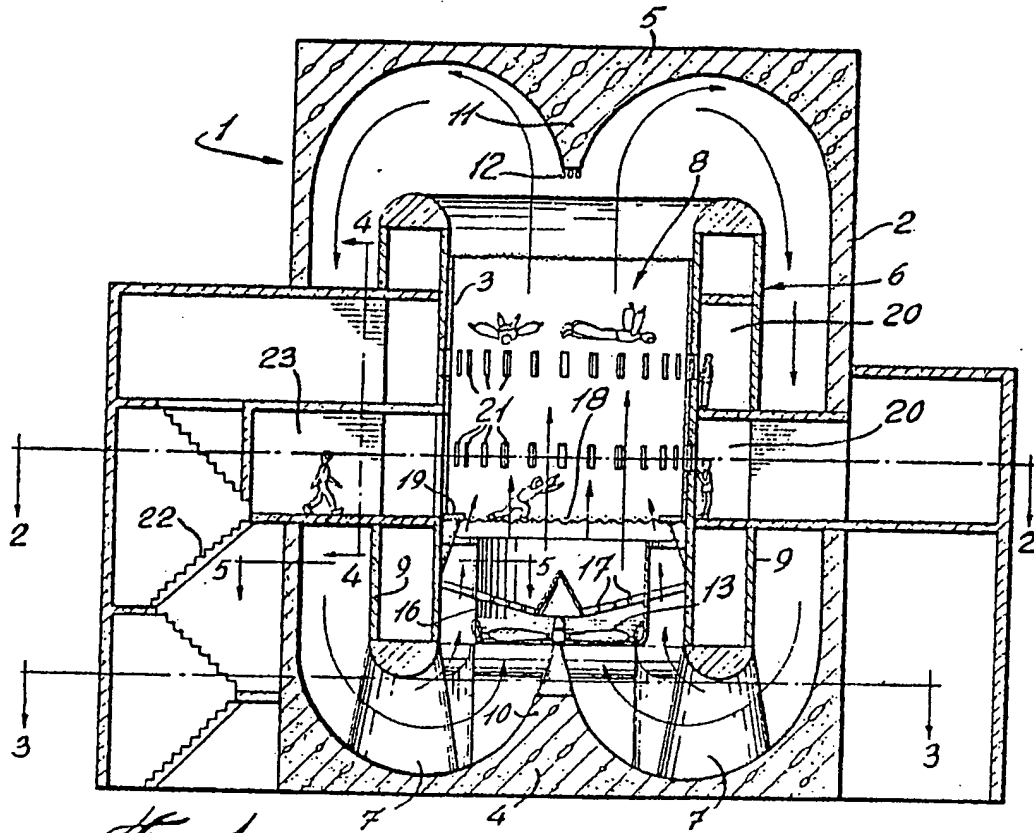


Fig. 1

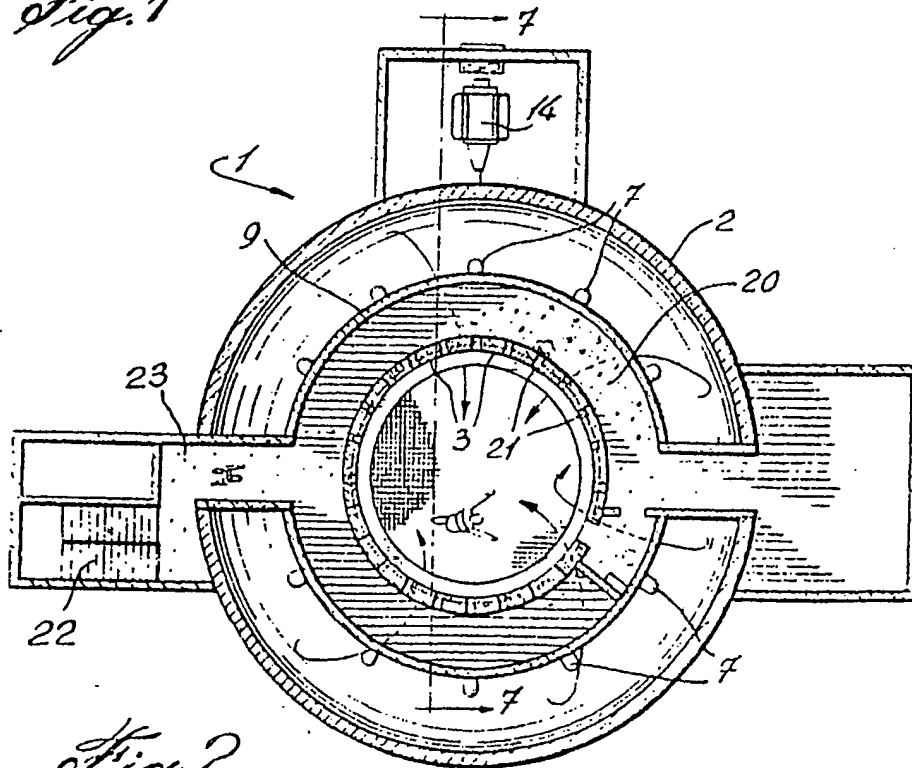


Fig. 2

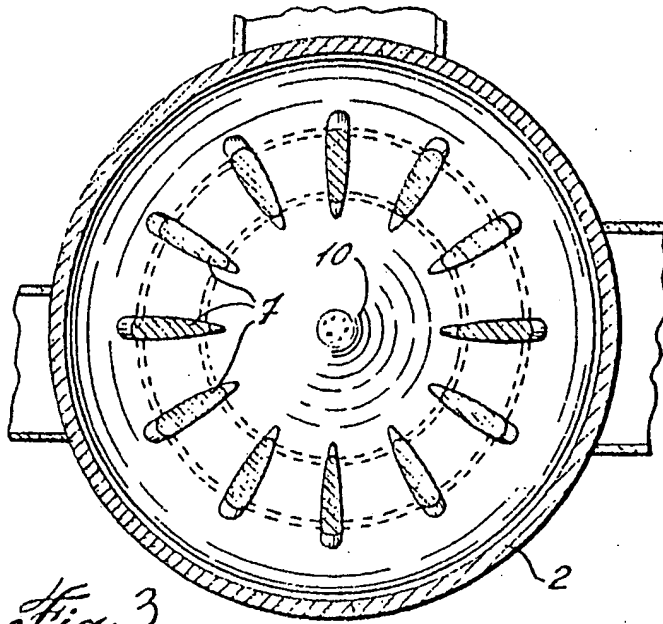


Fig. 3

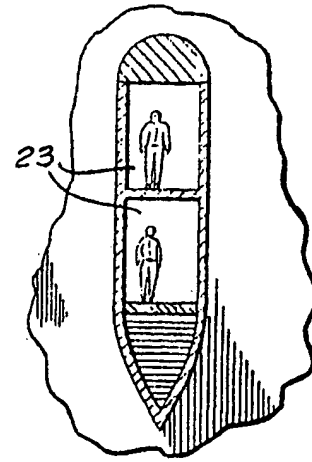


Fig. 4

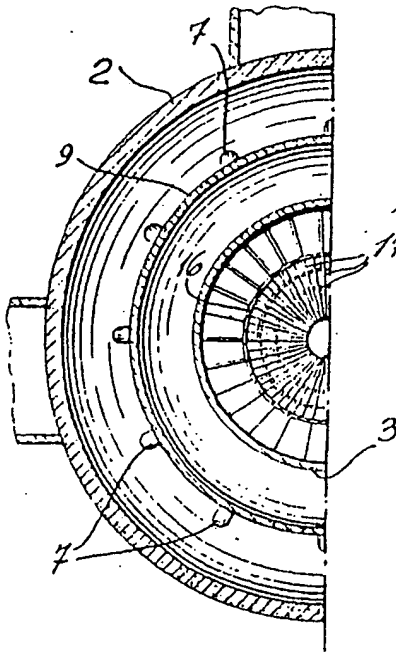


Fig. 5

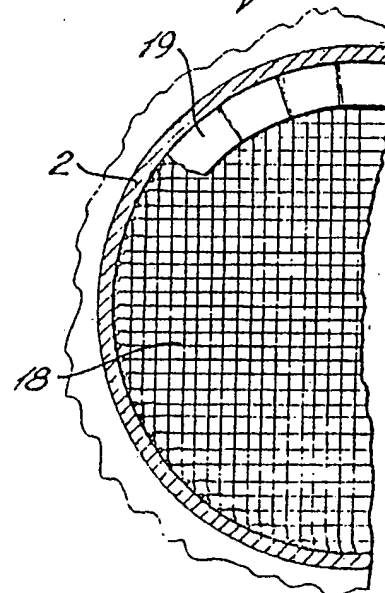


Fig. 6

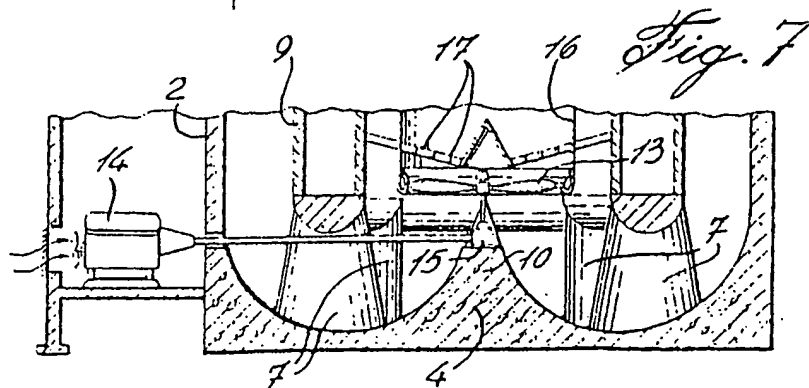


Fig. 7

# SPECIFICATION

## Levitationarium for air flotation of humans

- 5 This invention relates to an installation to levitate human beings by an upward flow of air, and in particular, to a levitationarium in which air flotation of humans is produced, either for the sole fun and enjoyment of users and spectators or for training, 10 such as to practice free fall by parachutists.

It is a general object of the present invention to provide a levitationarium of the above type.

- It is another general object of the present invention to provide a levitationarium of the above type 15 that is simple, safe and economic to operate.

- It is a more specific object of the present invention to provide a levitationarium of the above type, wherein the air blowing requirement and associated power requirement are minimized by appropriate 20 construction and arrangement of the air blowing propeller relative to the levitation chamber.

- It is a still more specific object of the present invention to provide a levitationarium of the above type, wherein an air blowing propeller is shrouded 25 and surrounded by an annular air passage to advantageously use the air flow by the propeller inside the shroud directly and also to produce an induced suction flow in that air passage around the shroud.

- 30 The present invention defines an installation such as in the form of a building having a room or chamber in which an upward air flow is produced to levitate human beings. This installation, herein called a levitationarium, is constructed and arranged to 35 be simple, safe and economic to operate in particular by comprising a blowing propeller that is shrouded and arranged to produce an induced suction flow in an annular air passage around it, under the action of direct flow by the propeller inside the shroud; by 40 having a toroidal air passage arranged for closed circuit streamline air flow serially through it and the levitation chamber; and by including a toroidal core portion interposed between the levitation chamber and the toroidal air passage and providing a specta- 45 tor-gallery and access to the levitation chamber.

- The above and other objects and advantages of the present invention will be better understood with reference to the following detailed description of a preferred embodiment thereof which is illustrated by 50 way of example, in the accompanying drawings, in which:

*Figure 1* is a cross-sectional view in elevation of a levitationarium for air flotation of humans according to the present invention;

- 55 *Figures 2, 3, 4, and 5* are cross sectional views as seen along lines, 2-2, 3-3, 4-4, and 5-5, respectively;

*Figure 6* is an enlarged scale view of the center of *Figure 2*; and

- 60 *Figure 7* is a cross-sectional view as seen along line 7-7 in *Figure 2* and particularly illustrating an air blower system according to the present invention.

- The illustrated levitationarium comprises a housing 1, in this case in the form of a building having a generally cylindrical outline. The housing 1 includes 65 a cylindrical outer lateral wall 2 coaxial with a

cylindrical inner wall 3. The outer cylindrical wall is integrally formed with a base 4 and a roof 5, all of concrete. The building 1 is formed with a toroidal and generally cylindrical chamber in which is 70 mounted a core 6 of toroidal shape.

- The toroidal core includes an inner and an outer cylindrical walls. The inner cylindrical wall of the toroidal core is internally coated with a shock-absorbing lining to form with it the inner cylindrical 75 wall 3. The toroidal core 6 is supported on a plurality of posts 7 that are radially streamlined for uniform streamline flow between them. The inner cylindrical wall 3 encloses a cylindrical levitation chamber 8 and is open at its bottom and top to form a lower inlet 80 end and a top outlet end. The internal space in the housing 1 forms a toroidal air passage extending between the top outlet end and the bottom inlet end of the cylindrical levitation chamber 8 and passing between the outer cylindrical wall 9 of the core 6 and 85 the outer cylindrical wall 2 of the building 1. That toroidal air passage thus allows closed circuit air flow serially with upright air flow in the levitation chamber.

- To produce an appropriate smooth or streamlined 90 air flow, the base 4 and the roof 4 are formed with an inward axial projection 10 and 11, respectively. Advantage is taken of the top inward axial projection to secure light projectors 12 and possibly other utility items such as air flow meters, not shown. On 95 the bottom inward axial projection 10, there is mounted an air blower in the form of an air blowing propeller 13. The latter is mounted coaxially with the levitation chamber 8 at the bottom of it and is driven by a motor 14 through a gearbox 15. The propeller 100 13 is surrounded by a cylindrical shroud 16 that is diametrically smaller than the inner cylindrical wall 3 to define an annular air passage between them. The air blowing propeller 13 produces suction on the air in the afore-mentioned air passage and, thus, an 105 additional air flow, or suction air flow, in addition to its own direct air flow. Thus, the relatively smaller propeller 13 requires a substantially smaller engine 14 than if the same flow was all produced only by direct flow through a large propeller. A grid 17 is 110 fixedly secured in the levitation chamber above the propeller 13.

- A take-off and landing base overlies the shrouded propeller and includes a grating 18, of any suitable material, to support standing users while allowing 115 upward air flow through it. The take-off and landing base also includes an impervious peripheral walkway 19 on which people can stand substantially clear of the upward air flow and from which they can dive toward to center of the chamber to be lifted by the air 120 flow and float, as shown in *Figure 1*.

- The core 6 forms superposed annular galleries 20 in which spectators may be allowed to watch the users through windows 21 in the wall 3. Appropriate stairways 22 and passages 23 are provided to give 125 access to the inner levitation chamber through the toroidal surrounding portion of the building 1. The top and bottom of each internally-extending portion of the building, such as of the core 6 and passages 23, are curved and streamlined at the their top and 130 bottom for maximum air flow efficiency according to

the known concepts of aerodynamic.

## CLAIMS

- 5 1. A levitationarium for air flotation of humans and comprising a housing forming a levitation chamber having an inlet and an outlet at the bottom and top, respectively, thereof, a take-off and landing base mounted in the housing to support users in the  
10 levitation chamber, and a blower positioned relative to the housing in communication with the levitation chamber and constructed and arranged for blowing air upwardly from the bottom inlet to the top outlet thereof and thereby produce air flow levitation of  
15 users in the levitation chamber.
2. A levitationarium as defined in claim 1, wherein said blower includes a shrouded propeller mounted in the inlet at the bottom of the levitation chamber.
- 20 3. A levitationarium as defined in claim 2, wherein the housing includes an upright inner cylindrical wall defining the levitation chamber, and the shrouded propeller is rotatable about the upright axis defined by the cylindrical wall.
- 25 4. A levitationarium as defined in claim 3, wherein the shrouded propeller includes a cylindrical shroud diametrically smaller than the surrounding portion of the upright inner cylindrical wall and cooperatively forming therewith an annular space  
30 separating the shroud from the upright inner cylindrical wall and defining an axial air passage extending outwardly of the shroud and constructed and arranged for air suction flow therethrough upon operation of the propeller.
- 35 5. A levitationarium as defined in claim 1, 3 or 4, wherein the housing includes an air passage portion communicating the top outlet with the bottom inlet and constructed and arranged for closed circuit flow therethrough serially with the levitation chamber  
40 and the blower.
6. A levitationarium as defined in claim 4, wherein the housing includes an outer wall enclosing the upright inner cylindrical wall and outwardly spaced therefrom by an annular air space forming a toroidal  
45 air passage communicating the top outlet with the bottom inlet and constructed and arranged for closed circuit streamline flow therethrough serially with the levitation chamber and the shrouded propeller.
- 50 7. A levitationarium as defined in claim 1, 2 or 4, wherein the housing includes a core portion forming a gallery externally of the upright inner cylindrical wall and an access for the passage of users in and out of the levitation chamber through said wall.
- 55 8. A levitationarium as defined in claim 1, 2 or 4, wherein the housing includes a toroidal core portion positioned around the upright inner cylindrical wall and forming a spectator-gallery externally of the upright inner cylindrical wall and an access for the  
60 passage of users in and out of the levitation chamber through said wall, and the latter includes windows registering with the spectator-gallery and constructed and arranged for spectator viewing inside the levitation chamber.
- 65 9. A levitationarium as defined in claim 6, where-

- in the housing includes a toroidal core portion positioned around the upright inner cylindrical wall inwardly of the toroidal air passage and forming a spectator-gallery externally of the upright inner  
70 cylindrical wall and an access for the passage of users in and out of the levitation chamber through said wall, and the latter includes windows registering with the spectator-gallery and constructed and arranged for spectators viewing inside the levitation chamber.
- 75 10. A levitationarium as defined in claim 1, 6 or 9, wherein the take-off and landing base includes a grating operatively supporting standing users and allowing upward flow of the blown air therethrough.
- 80 11. A levitationarium as defined in claim 1, 6 or 9, wherein the take-off and landing base includes an air-impervious peripheral walkway and a grating operatively supporting standing users with the grating allowing upward flow of the blown air there-  
85 through.
12. A levitationarium for air flotation of humans, constructed and arranged substantially as herein particularly described with reference to the accompanying drawings.

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